7th.—Hail and high winds caused some damage near Bluffton, Ind. Mexico, Mo., was visited by a severe wind and rain storm; buildings in the lowlands were flooded to a depth of 3 feet, and some damage was done to frail structures by the wind. Heavy rains and high winds were also reported at Cleveland, Chicago, and Leavenworth, Kans.; four persons were drowned in a culvert at the last-named place.

8th.—Local storms of greater or less intensity prevailed throughout Wisconsin, and a minor tornado was observed in Winnebago County; it destroyed a barn in its path and disappeared over Lake Winnebago.

9th.—A minor tornado passed through Wyeth City, a suburb of Guntersville, Ala., wrecking 5 frame houses, injuring 5 persons, and damaging property to the extent of $5,000. The storm path was about 200 yards wide. No other tornadoes were reported in this region, but a severe thunderstorm prevailed throughout eastern Tennessee, being especially violent in portions of Cocke County, where it is reported thousands of trees were blown down, buildings were damaged, and one person injured. Thunderstorms accompanied by hail were also reported from North Carolina.

13th.—Hail ruined the crops over a strip of country in Wake County, N. C.

14th.—High winds and tides prevailed on the New Jersey coast early in the morning of the 14th. The force of the winds was so great that several persons were blown overboard from wharves and vessels. The New England coast was also swept by unusually strong winds on the same date.

15th.—Severe thunderstorms were noted in portions of Maryland and Wisconsin.

16th.—High winds swept over portions of Nebraska. One dwelling and several small buildings were destroyed, one person killed, and three injured at Republican City, Nebr. An incipient tornado cloud was observed near Bismarck, N. Dak., on the same date; no damage.

17th.—A strong wind created much alarm and some damage to property at Guthrie, Okla. Portions of Payne, Noble, and Logan counties, in the same Territory, were also visited by a severe wind storm. Damage confined to crops and fences.

18th.—A waterspout was observed about one-half mile beyond the Charleston jetties, Charleston harbor, moving slowly northeastward.

20th.—Severe thunderstorms were observed in Wisconsin.

21st.—Severe thunderstorms occurred at St. Louis and Macomb, Mo. At the first-named place it was reported that property was damaged to the extent of $10,000. The storm was also felt in Iowa, Indiana, and Ohio. Violent thunderstorms also prevailed in northern New Jersey, eastern New York, and New England, and an incipient tornado was reported as having occurred at Nutley, N. J. Considerable damage was done by a severe thunderstorm at Poughkeepsie, N. Y., and also in the Nashua Valley, N. H. The damage at Poughkeepsie was estimated at $25,000.

22d.—Hailstorms of considerable severity were reported from portions of Illinois, Kansas, Nebraska, Oklahoma, and Georgia.

23d.—Torrential rains in southeastern Ohio, and in Marshall, Wetzel, and Tyler counties, W. Va., caused destructive floods in the tributaries of the Ohio, particularly the Little Muskingum. Cloud-bursts were also reported from Jeffersonville, Ind., and Hopkinsville Ky. Clark Co., Mo., was visited by a severe hailstorm.

24th.—A minor tornado passed over Clayton, Wis. Two persons were injured, six houses destroyed, and a few barns wrecked.

25th.—Severe thunderstorms passed over Detroit, Mich., and Creston, Iowa, houses were unroofed, and fences, chimneys, and awnings blown down.

27th.—A minor tornado passed over West Louisville, Ky. One dwelling was wrecked, one person killed, and one injured. Damage about $1,000.

The loss of life during the month was: By violent winds, 3; by lightning, 45.

TEMPERATURE OF THE AIR.

[In degrees Fahrenheit.]

The mean temperature is given for each station in Table II, for voluntary observers. Both the mean temperatures and the departures from the normal are given in Table I for the regular stations of the Weather Bureau.

The *monthly mean temperatures* published in Table I, for the regular stations of the Weather Bureau, are the simple means of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

The *regular diurnal period* in temperature is shown by the hourly means given in Table V for 29 stations selected out of 82 that maintain continuous thermograph records.

The *distribution of the observed monthly mean* temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart IV; the lines are drawn over the Rocky Mountain Plateau Region, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The *highest mean temperatures* were: Yuma. 88.8; Galveston and Key West, 82.3; Corpus Christi, 80.6; Port Eads, 80.2. The lowest mean temperatures were: Tatoosh Island, 53.0; East Clallam, 53.4; Port Angeles, 53.8; Eureka, 54.0; Neahbay, 54.5; Port Crescent, 55.1; Pysht, Fort Canby, and Eastport, 56.4. Among the Canadian stations the highest were: Medicine Hat, 66.2; Spences Bridge, 65.9; Winnipeg, 65.0; Toronto, 64.1; Montreal, 63.6; Kingston, 63.4. The lowest were: St. Johns, 51.0; Banff, 52.6; Father Point, 52.3; Yarmouth, 54.6.

As compared with the normal for June the mean temperature for the current month was in excess over the Plateau Region, the Ohio Valley, and Lake Region, and deficient on the Pacific Coast. The greatest excesses were: Phœnix, 5.7; Abilene, 5.0; Swift Current, 4.8; Marquette, 4.4; Rapid City, Port Stanley, and Winnemucca, 4.2; Yuma, 4.0. The greatest deficits were: San Francisco, 2.6; Lynchburg, 2.4; Portland, Oreg., and Columbia, Mo., 2.1; New York, 1.8; Lexington and Charlotte, 1.7; Point Reyes Light, 1.6.

Considered by districts the mean temperatures for the current month show departures from the normal as given in Table I. The greatest positive departures were: Southern Slope (Abilene), 5.0; southern Plateau, 3.3. The greatest negative departures were: Middle Atlantic and north Pacific, 0.8.

The *years of highest and lowest mean temperatures* for June are shown in Table I of the REVIEW for June, 1894. The mean temperature for the current month was the highest on record at: Abilene, 83.1; Palestine, 81.6; Fort Smith, 78.4; Pueblo, 72.0; Santa Fe, 69.0; Idaho Falls, 62.4; Baker City, 59.6. It was the lowest on record at: Columbia, Mo., 72.8; Neahbay, 54.5.

The *maximum and minimum temperatures* of the current month are given in Table I. The highest maxima were: 117, Yuma (12th); 115, Phœnix (frequently); 106, Fresno (14th); 105, Abilene (8th), Walla Walla (28th); 104, Dodge City (14th); 103, El Paso (16th); 102, Redbluff (16th); 100, Oklahoma (15th), San Antonio (18th), Palestine (28th). The lowest maxima were: 64, Eureka (7th); 65, Point Reyes Light (23d); 69, Tatoosh Island (26th). The highest minima were: 73, Galveston (10th); 71, Key West (13th); 70, Port Eads (2d); 69, New Orleans (23d), Jupiter (14th),

Tampa (28th); 68, Corpus Christi (17th). The lowest minima were: 33, Idaho Falls (11th); 34, Baker City (10th); 36, Lander (11th), Northfield (3d); 37, Sault Ste. Marie (2d), Roseburg (10th), Pysht and East Clallam (13th).

The *years of highest maximum and lowest minimum temperatures* are given in the last four columns of Table I of the current REVIEW. During the present month the maximum temperatures were the highest on record at: Yuma, 117; Walla Walla, 105; Palestine, 100; Roseburg, 98; Idaho Falls, 91; San Diego, 89; Port Angeles, 83. The minimum temperatures were the lowest on record at: Meridian, 58; Idaho Falls, 33.

The greatest daily range of temperature and data for computing the extreme and mean monthly ranges are given for each of the regular Weather Bureau stations in Table I. The largest values of the greatest daily ranges were: Miles City, 49; Lander, Pueblo, Idaho Falls, Port Crescent, Roseburg, and San Luis Obispo, 46; North Platte, Havre, and Winnemucca, 44. The smallest values were: Hatteras, 14; Key West and Tatoosh Island, 16; Jupiter and Galveston, 17; Kittyhawk, Point Reyes Light, and Eureka, 18; Block Island, 19; Wilmington, and Corpus Christi, 20. Among the extreme monthly ranges the largest were: Walla Walla and Roseburg, 61; San Luis Obispo, 60; Fresno, 59; Idaho Falls and Dodge City, 58; Miles City, 57; Spokane and Baker City, 56. The smallest values were: Galveston and Hatteras, 17; Key West, 18; Jupiter, 19; Eureka, 20; Port Eads, 21; Tatoosh Island, 23.

The *accumulated monthly departures* from normal temperatures from January 1 to the end of the current month are given in the second column of the following table, and the average departures are given in the third column for comparison with the departures of current conditions of vegetation from the normal condition.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
Middle Atlantic	+ 2.3	+ 0.4	New England	− 1.2	− 0.2
South Atlantic	+ 8.1	+ 1.4	Florida Peninsula	− 9.7	− 1.6
West Gulf	+ 7.8	+ 1.3	East Gulf	− 1.2	− 0.2
Ohio Valley and Tenn.	+ 9.5	+ 1.6	North Pacific	− 3.7	− 0.6
Lower Lake	+ 9.9	+ 1.6	Middle Pacific	− 0.8	− 0.1
Upper Lake	+20.5	+ 3.4			
North Dakota	+ 9.7	+ 1.6			
Upper Mississippi	+20.9	+ 3.5			
Missouri Valley	+20.3	+ 3.4			
Northern Slope	+10.0	+ 1.7			
Middle Slope	+22.2	+ 3.7			
Abilene (southern Slope)	+22.0	+ 3.7			
Southern Plateau	+ 7.7	+ 1.3			
Middle Plateau	+ 2.1	+ 0.4			
Northern Slope	+12.6	+ 2.1			
South Pacific	+ 4.8	+ 0.8			

MOISTURE.

The *quantity of moisture* in the atmosphere at any time may be expressed by the weight of the vapor coexisting with the air contained in a cubic foot of space, or by the tension or pressure of the vapor, or by the temperature of the dew-point. The mean dew-points for each station of the Weather Bureau, as deduced from observations made at 8 a. m. and 8 p. m., daily, are given in Table I.

The *rate of evaporation* from a special surface of water on muslin at any moment determines the temperature of the wet-bulb thermometer, but a properly constructed evaporometer may be made to give the *quantity* of water evaporated from a similar surface during any interval of time. Such an evaporometer, therefore, would sum up or integrate the effects of those influences that determine the temperature as given by the wet bulb; from this quantity the *average humidity of the air* during any given interval of time may be deduced.

Measurements of evaporation within the thermometer shelters are difficult to make so as to be comparable at temperatures above and below freezing, and may be replaced by computations based on the wet-bulb temperatures. The absolute amount of evaporation from natural surfaces not protected from wind, rain, sunshine, and radiation, are being made at a few experimental stations and will be discussed in special contributions.

Sensible temperatures.—The sensation of temperature experienced by the human body and ordinarily attributed to the condition of the atmosphere depends not merely on the temperature of the air, but also on its dryness, on the velocity of the wind, and on the suddenness of atmospheric changes, all combined with the physiological condition of the observer. A complete expression for the relation between atmospheric conditions and nervous sensations has not yet been obtained.

PRECIPITATION.

[In inches and hundredths.]

The *distribution of precipitation* for the current month, as determined by reports from about 2,500 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III. The total precipitation for the current month was heaviest in Florida and heavy in small areas within Missouri, Alabama, Louisiana, and the western part of North Carolina. It was least, viz, 0.00 in Central California and the adjacent portions of Nevada and Arizona.

The larger values at regular stations were: Tampa, 13.4; Pensacola, 12.5; Jacksonville, 9.4; Jupiter, 8.9; New Orleans, 8.2; Charleston and Meridian, 7.6; Mobile, 7.2.

The *diurnal variation*, as shown by tables of hourly means of the total precipitation, deduced from self-registering gauges kept at the regular stations of the Weather Bureau, is not now tabulated.

The *current departures* from the normal precipitation are given in Table I, which shows that precipitation was in excess at many stations on the Atlantic Coast as also generally in Florida, southern Georgia, Alabama, Mississippi, and western Louisiana. Elsewhere it was generally deficient. The large excesses were: Mobile, 7.1; Tampa, 6.5; Galveston, 4.5; Yarmouth, 4.4; Norfolk, 3.7; Detroit, 3.3; New York, 3.2. The large deficits were: Omaha, 3.8; Palestine, 3.5; Kansas City, 2.9; Fort Smith, 2.8; Des Moines, 2.7.

The *average departure* for each district is also given in Table I. By dividing these by the respective normals the following corresponding percentages are obtained (precipitation is in excess when the percentages of the normals exceed 100):

Above the normal: Middle Atlantic, 119; Florida, Peninsula, 144; east Gulf, 129; Lower Lake, 103.

Normal: Southern Plateau, 100.

Below the normal: New England, 97; south Atlantic, 92; west Gulf, 39; Ohio Valley and Tennessee, 83; upper Lake, 60; lower Lake, 76; upper Mississippi, 76; Missouri Valley, 71; northern Slope, 70; middle Slope, 84; southern Slope, (Abilene), 66; middle Plateau, 27; northern Plateau, 65; north Pacific, 85; middle Pacific, 20; south Pacific, 0.00.

The years of greatest and least precipitation for June are given in the REVIEW for June, 1890. The precipitation for the current month was the greatest on record at: Vineyard Haven, 3.59; Meridian, 7.55; Tampa, 13.42. It was the least on record at Northfield, 1.62; Nashville, 1.82; Palestine, 0.71; Pueblo, 0.35.

The total accumulated monthly departures from normal precipitation from January 1 to the end of the current month are given in the second column of the following table; the third column gives the ratio of the current accumulated precipitation to its normal value.